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An Analysis of Closed Caption Accessibility and the Inclusive Viewing Experience of the Deaf Community on Netflix

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Abstract: This study analyzes the accessibility of closed captioning (CC) to the inclusive viewing experience of the Deaf community on the Netflix streaming service in Indonesia. Departing from the gap between feature availability and perceived functionality, this study positions Deaf people as subjects of knowledge, not merely objects of the service. Qualitative-descriptive methods were used through in-depth interviews and observations of viewing practices. The study population was the Deaf community in the DKI Jakarta and Tangerang areas, with a convenience sampling technique involving six respondents as participants in the observations and interviews. Data were analyzed thematically with a focus on time synchronization, translation accuracy, descriptions of sound effects/emotions, readability, and consistency of caption placement. The results of this study include a map of accessibility dimensions (technical, cognitive, affective, and social), identification of common barriers and good practices, and recommendations for improving Closed Caption (CC) standards and interface design that involve the participation of the Deaf community from the upstream production stage. The theoretical contribution enriches the discourse on inclusive communication and digital literacy, while the practical contribution provides a basis for policy and technical guidelines for platform providers, policymakers, and educators. Ultimately, this study affirms everyone's right to enjoy stories equally safely, meaningfully, and without barriers.

Keywords: Accessibility, Digital Inclusion, Deaf Community, Streaming Services, Closed Caption

INTRODUCTION

Disability is not an acronym; Different Ability is a conceptual reinterpretation, or Different Ability People, people with different abilities. This term is used to refer to individuals with physical disabilities. Meanwhile, the term Disability is an approach to obtain a neutral term and does not have the potential for discrimination and stigmatization. The definition provided by the International Classification of Functioning of Disability and Health, which was then agreed upon by the World Health Assembly and used by the World Health

Organization (WHO), is "Disability serves as an umbrella term for impairments, activity limitations or participation restrictions" (kemenhan.go.id, 2016). People with disabilities are an integral part of society who have the right to equal access to various facilities, including media. In this context, it is important to understand how media can function as a means to increase social inclusion and reduce stigma against people with disabilities. People with disabilities consist of various groups such as the blind, physically impaired, and deaf, each of which faces unique challenges in accessing media. Media, in its various forms such as films, television series, educational videos, and online entertainment platforms, functions not only as a means of entertainment, but also as a tool to convey information, increase literacy, build intercultural understanding, and facilitate social participation.

Research by Wijayanti and Nadhiroh shows that optimizing the Sanggar Difabel Solo YouTube account can serve as an effective mass communication medium for realizing an inclusive society in Indonesia, despite ongoing challenges in social acceptance of people with disabilities (Wijayanti & Nadhiroh, 2023). However, people with disabilities often face barriers in accessing media. These barriers include the lack of accessibility features such as subtitles, audio descriptions, user-friendly interfaces, or sign language interpretation, which can impact their understanding of the media they consume.

Good quality interpretation, which includes a thorough understanding of sign language and cultural context, is crucial to ensuring that messages are well understood by people with disabilities. Therefore, better training for sign language interpreters is needed to improve the quality of their services (Nilsson, 2016). This creates a space of exclusion that reduces their opportunities to enjoy the benefits of media equally. For example, blind people require audio description to understand visual content, while deaf people rely heavily on subtitles or sign language interpretation. Despite technological advancements, the implementation of these features in media is uneven, resulting in significant gaps.

Butler notes that the quality of subtitles significantly impacts the viewing experience, especially for viewers with hearing impairments (Butler, 2020). Some subtitles are out of sync with the tempo of the conversation, lack relevant sound effects, or simply display text without conveying the emotional nuances of a particular scene. Furthermore, mainstream media rarely includes sign language interpretation, except in specific programs such as news broadcasts, state events, or public discussions designed for inclusivity. The absence of these elements not only diminishes the quality of the media experience for deaf viewers but also reinforces the gap in access to information between deaf viewers and the general public.

Among various disability groups, deaf people face special challenges that require attention. Furthermore, access to media for deaf people is not just about entertainment, but also concerns their fundamental right to equal access to information. In the educational context, for example, digital media is a crucial tool for learning, especially in the era of e-learning or distance learning. Educational video content is often used as an interactive and engaging learning medium, but the lack of accessibility features such as subtitles or visual narration prevents many deaf people from fully utilizing this media. This directly impacts their ability to understand learning materials, which ultimately affects their academic performance and career opportunities. In this regard, access to and understanding of media is not merely a technical issue, but also reflects the extent to which the education system and society as a whole respect the principle of equality.

In an increasingly digitally connected world, technology should be a bridge that unites everyone, not the other way around. However, the reality is far from ideal. Amidst the rapid flow of information, some groups still lack equal access to digital cultural products. One such community is the deaf community. They often experience gaps in accessing audiovisual content that hasn't been fully designed with their visual needs in mind. Research such as that conducted by Handayani, Tahir, and Setiawan (2024) reveals that although public spaces are increasingly

digital, not all of them are able to adequately reach deaf people. This is where discussing digital accessibility becomes crucial, especially in the context of entertainment, which is now dominated by streaming services like Netflix.

Digital accessibility isn't just about providing technological devices or additional features. It's more than that; it concerns the right to participate in cultural conversations, sharing laughter, tears, and the meaning contained within a show. When technology is created without considering the diversity of its users, it leads to exclusion rather than inclusion. Deaf communities, who rely on visuals as their primary communication channel, often find that existing technology doesn't fully meet their needs. This is consistent with a study by Adinda and Amelia (2023), which showed that meeting the information needs of the Deaf community still faces various barriers, particularly in the delivery of audio-visual information. Shows without subtitles or with inaccurate subtitles act as a barrier that robs them of an equal viewing experience.

Closed captioning (CC), originally designed to assist viewers with hearing impairments, is a crucial feature that can address these challenges. However, the presence of CC alone is not enough. The quality of the captions, their timing, and the accuracy of capturing audio nuances such as music or voice intonation are crucial factors in determining whether a show is truly accessible. Gomizelj (2022), in his in-depth study of closed captioning on Netflix, emphasized that although Netflix provides CC in many languages, technical issues such as timing inconsistencies and translation errors persist. These issues demonstrate that even technically available features do not necessarily guarantee an inclusive viewing experience.

Furthermore, when we talk about an inclusive viewing experience, we're not just talking about being able to access content. We're also talking about how deeply someone can understand, enjoy, and absorb what they're watching. Inclusivity means providing space for everyone to feel emotionally, cognitively, and socially engaged. As Agatha and Swarnawati (2024) point out, emotions and personal involvement are integral to the media user experience, including in the context of Netflix. Therefore, for the Deaf community, this experience depends heavily on how seriously the media addresses accessibility aspects, such as providing appropriate subtitles, sign language interpreters, or even more communicative visual formats.

The Deaf community itself is more than just a group of people who cannot hear. They are a cultural entity that uses sign language as their primary means of communication. They have a strong identity, distinctive values, and a unique perspective on the world. Unfortunately, many digital media outlets still treat them as a "special needs" group rather than as part of society's diversity. Adinda and Amelia (2023) also noted that institutional approaches to the Deaf community tend to be top-down and fail to adequately understand their inherent cultural values. This is reflected in the lack of efforts to truly understand how they view, interact with, and respond to digital content.

This phenomenon is not without data. Various reports indicate that media accessibility still lags far behind the spirit of inclusivity that has long been advocated. For example, according to a report by Liputan6.com (Syarifah, 2023), many television broadcasts still lack adequate captioning or sign language interpretation. The interpreters are too small, not adjusted to the speed of the conversation, and sometimes even disappear off-screen. The same thing happens on platforms like Netflix. Although they offer a CC option, the subtitles provided often don't reflect the context, are often too literal or incorrect (Prawira, 2025). As a result, the viewing experience becomes disconnected and lacks meaning.

Evelina (2020) revealed in her research that many digital platforms still design their services without considering accessibility principles. Yet, in the ever-evolving digital world, inclusive design is no longer an option, but a necessity. Video captions, for example, are often considered complementary, not a core component of visual communication. This is reinforced by Mahalli's (2018) findings, which note that video captions are often created without adequate

quality standards. This demonstrates that sensitivity to the needs of the deaf community has not yet become deeply rooted in our digital culture.

Meanwhile, studies on closed captioning have progressed significantly abroad. Downey (2008) stated that the convergence of text and television is a crucial step in the evolution of inclusive media. Romero-Fresco (2019) even advocates for an "accessible filmmaking" paradigm, where the needs of people with disabilities are taken into account throughout the production process, rather than simply added on at the end. In Indonesia, studies such as those by Evelina (2020) and Ichsan et al. (2018) have opened up discussions about how online access and sign language are implemented in social media. However, there is still very little research specifically evaluating the Deaf community's experience with the quality of closed captioning on streaming services like Netflix.

Research by Sourbati shows that inequality in media access can exacerbate social exclusion, and digital literacy is a key aspect in addressing this issue (Sourbati, 2012). Digital literacy also plays a crucial role in determining the extent to which deaf people can utilize media. Digital literacy encompasses the ability to use technological devices, understand digital content, and utilize available accessibility features. However, not all deaf people have adequate access or guidance to develop their digital literacy. Deaf people from low-income backgrounds or areas with limited technological infrastructure often have lower levels of digital literacy, further exacerbating the gap in media accessibility. For those with high digital literacy, features such as automatic subtitles, text transcription, or streaming services with sign language interpretation can be a solution to overcome barriers to media consumption. However, for those unfamiliar with technology, these challenges become even more complex, creating a cycle of inequality that is difficult to break without targeted intervention.

This is a major gap in current academic research. Few local studies have empirically explored how the Deaf community assesses the quality of closed captioning on Netflix from their own perspective. Existing research tends to be technical and fails to explore the affective, cognitive, and social aspects of the viewing experience. Yet, a comprehensive understanding of the viewing experience would provide a richer picture of how the technology should be developed. There are also no studies that truly assess whether closed captioning fosters a sense of inclusivity or actually reinforces the boundaries between those who can and cannot fully enjoy a show.

Based on this background, it can be concluded that the research problem formulation in this study is how the accessibility of closed captions affects the effectiveness of an inclusive viewing experience for the Deaf community on the Netflix streaming service. This study aims to determine and analyze the accessibility of closed captions towards an inclusive viewing experience for the Deaf community on the Netflix streaming service.

Reviewing previous research, while numerous studies have addressed accessibility, none have specifically evaluated the quality of closed captioning on Netflix Indonesia based on the lived experiences of the deaf community. This research not only fills an academic gap but also supports advocacy for more equitable and inclusive media.

The urgency of this research lies in the importance of bridging the gap in information access for the Deaf community in the digital era, particularly on streaming services like Netflix, which dominate global viewing culture. Although closed captioning (CC) features are readily available, their quality and functionality still pose technical and emotional barriers for Deaf users, such as text delays, inaccurate translations, and limited audio descriptions. This research is urgent because, to date, there have been few studies in Indonesia that empirically highlight the Deaf community's experiences in accessing CC in the context of digital entertainment. The novelty of this research lies in its participatory approach, which positions the Deaf community as subjects of knowledge, not merely objects of observation. Furthermore, the analysis focuses on the affective and social dimensions of the viewing experience, rather than solely on the

technical aspects, thus providing a new contribution to the development of a more inclusive and empathetic media design model in the Indonesian digital creative industry.

The conceptual framework of this research is as follows:

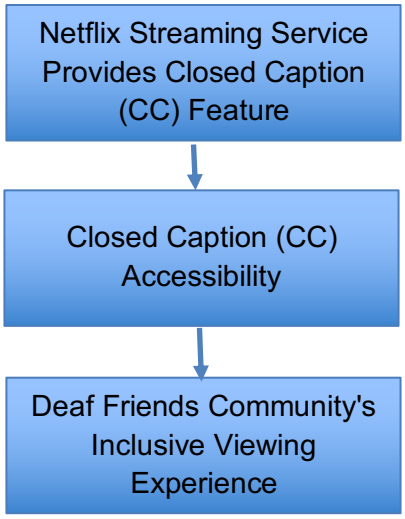

Figure 1. Framework of Thought

METHOD

This study uses a qualitative approach with descriptive methods that aim to deeply understand the subjective experiences of the Deaf community in accessing the closed caption (CC) feature on the Netflix streaming service in Indonesia. This approach was chosen because it is suitable for examining naturally occurring phenomena, without variable manipulation, where the researcher acts as the primary instrument in exploring the meanings, perceptions, and social experiences of participants. As explained by Sugiyono (2012), qualitative research emphasizes understanding the context and meaning of human behavior in real-life situations. In the context of this study, the researcher seeks to uncover how the closed caption feature is understood not only as a technical aid, but also as a form of social representation that reflects the extent to which digital accessibility can fulfill the Deaf community's right to enjoy entertainment equally.

A descriptive-exploratory approach was used to provide a detailed description of the Deaf community's viewing experience, encompassing technical, emotional, and social aspects. Researchers focused on how they interact with the text appearing on screen, how meaning is conveyed through written words in place of sound and music, and how this influences their emotional engagement with a show. This approach also explored users' perceptions, constraints, and adaptations in interpreting closed captions as an integral part of the viewing experience on the Netflix platform.

The population of this study was the Deaf community residing in the DKI Jakarta and Tangerang areas, as these two areas have a high level of community activity and active involvement in the use of digital media and streaming services. The sample was determined using a convenience sampling technique, selecting participants based on ease of access, willingness, and the relevance of their experiences to the research topic. A total of six respondents were involved as primary participants in the interviews and observations, consisting of members of the Deaf community within the productive age range who regularly use Netflix for entertainment. These six individuals were selected because they represent a variety of experiences in terms of social context, digital literacy level, and media consumption

habits. Therefore, this study does not attempt to make statistical generalizations, but rather provides a contextual and reflective understanding of the respondents' actual experiences.

Data were collected through several complementary techniques to ensure the depth and validity of the information. The first technique was in-depth interviews, conducted semi-structured to allow researchers to explore participants' experiences while still allowing them the freedom to share their personal stories. Questions focused on perceptions of text quality, timeliness, readability, and the relevance of the sound and emotion descriptions in the closed captions. Through these interviews, researchers gained an understanding of the extent to which closed captions meet the visual and emotional communication needs of the Deaf community.

The second technique was participant observation, in which researchers directly observe participants' behavior while watching Netflix shows with closed captions in their natural environments, such as homes or community spaces. Observations are conducted to capture nonverbal expressions, interaction patterns, and emotional reactions when they encounter subtitles that are out of sync, mistranslated, or do not reflect the nuances of sound and atmosphere. This participant observation provides contextual data that cannot be obtained through interviews alone and allows researchers to understand the viewing experience as a social and cultural event, rather than simply an individual technical activity.

Next, a documentation study was conducted by collecting secondary data in the form of video recordings, screenshots, photos, and Netflix policy documents related to accessibility. Supporting documents such as articles, research reports, and international guidelines on inclusive media were also analyzed to understand the development and standards of digital accessibility practices. Furthermore, a literature survey was conducted by reviewing various previous studies addressing similar issues, such as those by Downey (2008), Romero-Fresco (2019), and Handayani et al. (2024). This literature served as a theoretical basis and empirical comparison in analyzing the field research results.

The data analysis process was conducted using thematic analysis, in which researchers identified patterns, themes, and key meanings from the collected data. The first stage was data reduction, which involved filtering and grouping data based on its relevance to the research focus. Data from interviews, observations, and documentation were categorized into themes such as text time synchronization, translation accuracy, readability, sound descriptions, and user emotional responses. The next stage was data presentation, where the reduced information was organized into narratives and interpretive tables to demonstrate the relationship between technical dimensions and participants' affective experiences.

The final stage is drawing conclusions and verifying them, conducted through a process of in-depth interpretation and linking field findings to supporting theories. Data validity was maintained through several strategies, including triangulation of sources and methods, by comparing the results of interviews, observations, and documentation; member checking, which involves asking participants to reconfirm the researcher's interpretations to avoid distortion of meaning; and an audit trail, which involves systematically recording all stages of the research so that other researchers can retrace them. Furthermore, thematic consistency was tested by linking empirical findings to theoretical frameworks of inclusive communication and digital literacy.

Through this methodology, the research is expected to provide a comprehensive understanding of how the Deaf community interprets the closed caption feature not merely as supplementary text, but as a communication bridge and representation of their visual identity in the digital media space. The qualitative-descriptive approach with six respondents in the DKI Jakarta and Tangerang areas provides a significant scientific contribution to the development of inclusive communication studies in Indonesia, as well as offering concrete recommendations for streaming service providers to develop more sensitive, functional, and equitable accessibility features for all users without exception

RESULTS AND DISCUSSION

This study aims to analyze the extent to which the closed caption (CC) feature on the Netflix streaming service provides an inclusive viewing experience for the Deaf community in the Jakarta and Tangerang areas. A qualitative-descriptive approach was used, using participant observation and in-depth interviews with six Deaf respondents who actively use Netflix as their primary entertainment medium.

Observations show that all respondents routinely activate the closed caption feature on every broadcast, indicating that closed captioning is not just an additional feature, but a key component of media accessibility for deaf users. Field data shows that the majority of respondents believe that the presence of closed captioning helps them understand the context of conversations, character emotions, and story dynamics more fully. However, most complained about time synchronization issues, inaccurate idiomatic translations, and limited descriptions of sound effects and emotional nuances, which impact their cognitive and affective engagement in enjoying the broadcast.

From the thematic analysis of the interview and observation results, five main themes were found that represent the overall experience of the Deaf community:

1. Synchronization and technical reliability of CC text
2. Translation accuracy and representation of emotional meaning
3. Visual readability and text layout
4. Affective experience and emotional involvement of the audience
5. Digital literacy and adaptation strategies of the deaf community

These themes reflect the relationship between technical accessibility and social inclusivity, as explained in the conceptual framework of this study that the quality of closed captions is not only a technical issue, but also a matter of communication justice for groups with sensory impairments (Romero-Fresco, 2019).

Data processing results from viewing practice observations and in-depth interviews with six Deaf community respondents in the DKI Jakarta (R1–R4) and Tangerang (R5–R6) areas show that on Netflix directly impacts cognitive understanding, affective engagement, and a sense of social inclusion while enjoying shows.

The following table presents the results of interviews with six deaf community respondents in the Jakarta and Tangerang areas, scientifically compiled using a qualitative-descriptive approach. The table displays data on characteristics, viewing experiences, perceptions of Netflix closed captioning (CC), barriers encountered, emotional impacts, adaptation strategies, and suggestions for developing the CC feature according to each respondent.

Table 1.
Interview Results of Six Respondents from the Deaf Community in DKI Jakarta and Tangerang

Respondent Code	Age & Gender	Domicile	Netflix Watching Time per Week	Most Viewed Content Types	Perceptions of the Closed Caption (CC) Feature	Perceived Obstacles	Emotional Impact of Watching	Adaptation Strategy / Personal Solution
R1	23 years old, Male	Central Jakarta	4–6 hours	Action and comedy films	Found CC very helpful in understanding the context of the quick dialogue and sound effects.	CC often appears ±1 second late, sometimes out of sync with visual expression	Feeling like you're missing out on the funny momentum; delayed reactions lower satisfaction.	Slow down the display speed to 0.9× for more comfortable reading.
R2	27 years old, Female	East Jakarta	6–8 hours	Drama and documentary	Assessing CC is important for understanding character expressions and emotions.	Sound effect descriptions are inconsistent; sometimes they only show text translations.	The tension of the scene is lost when the sound effects are not displayed; lowering the emotional involvement.	Enable English subtitles to compare context
R3	21 years old, Female	West Jakarta	3–5 hours	Teen series and sitcoms	Use CC always because it helps to understand fast narrative	Text is too long (more than two lines), difficult to read quickly	Eyes tire quickly; it is difficult to enjoy visuals because of the focus on the text.	Using a laptop screen with 110% text zoom
R4	29 years old, Male	South Jakarta	8–10 hours	Drama and thriller series	CC helps understand emotions, but translation of idioms does not fit the context	Many idioms are translated literally; cultural meaning is lost	Losing the sense of emotion and original meaning of the conversation	Discuss with other deaf friends to reinterpret the meaning
R5	24 years old, Female	City of Tangerang	4–6 hours	Romantic and animated films	Rating CC makes things easier, especially for quick dialogues	Text position sometimes covers lower third (character name, message text)	Slightly distracted by obscured visuals; sometimes loses context	Move screen position or resize window
R6	26 years old, Male	South Tangerang	5–7 hours	Action films and documentaries	CC makes it easier to understand narration and background sounds.	White text color is difficult to read in dark scenes; no thick outline	Feeling frustrated in dark scenes because text disappears	Using “high brightness” mode and dark background

Source: Data Processed by the Author 2025

Observations show that all respondents in this study had relatively consistent viewing habits: watching independently at home or in their respective neighborhoods using personal devices, such as smartphones, laptops, or smart TVs. No respondents used tablets or public devices such as communal televisions. This pattern demonstrates that viewing activities for the deaf community are personal and private, allowing them to control their environment and the devices they use to achieve comfort and accessibility that meet their individual needs.

Five out of six respondents were found to automatically turn on closed captioning (CC) before playing Netflix content. This indicates that CC is not just an optional feature, but has become a mandatory component of the viewing experience for deaf users. Respondents stated that without CC, they had difficulty understanding conversations, especially in scenes involving rapid dialogue or complex background sounds. Only one respondent manually turned on CC

because he was accustomed to adjusting the text format and color to his preferences. This fact emphasizes that CC has become an integral part of the deaf community's viewing behavior, and psychologically acts as a substitute for hearing in their audiovisual experience.

Furthermore, the tendency to watch individually also demonstrates a sense of control over the media experience, with deaf users preferring a quiet environment to focus on reading the text. They also adjust the room lighting, screen size, and playback speed to ensure a more comfortable viewing experience and minimize visual fatigue. This observation indicates that the deaf community's viewing habits are not simply an act of entertainment consumption, but also a form of adaptive strategy to address the limitations of mainstream media accessibility.

Figure 1. Respondents Who Watch Movies on Netflix

From the results of interviews with six respondents, a number of similarities were found in patterns of experience and perceptions regarding the closed caption (CC) feature which reinforce the theme of inclusivity in watching digital content.

First, all respondents agreed that closed captioning is an essential element of the viewing experience. For them, captions are not just a technical aid for understanding conversations, but rather the primary means of interacting with audiovisual content. Without closed captioning, the viewing experience loses meaning because they cannot capture verbal messages, vocal expressions, or characters' emotions.

Second, the most dominant problem experienced by all respondents was the mis-synchronization between text and audio, with delays ranging from ±0.5 to 1.2 seconds. This delay made it difficult for respondents to match the characters' lip movements to the text appearing on the screen, thus reducing viewing satisfaction. Furthermore, the lack of descriptive sound effects such as background music, footsteps, or emotional tone was also frequently cited as a major obstacle. When text only displays dialogue without describing the atmosphere or intonation, the viewing experience becomes dry and loses its emotional dimension.

Third, three respondents (R2, R4, and R6) explicitly highlighted that literal translations in CC often omit cultural context, humor, and wordplay. For example, idiomatic expressions are translated literally without considering their meaning in their original culture, leading to confusion or even misunderstanding. This lack of understanding deprives the Deaf community

not only of linguistic meaning but also of the humorous dimension and the depth of cultural interactions between characters.

Fourth, four respondents reported experiencing visual fatigue when watching long films. This fatigue is caused by excessively long lines of text, rapid dialogue changes, and low text color contrast especially in darkly lit scenes. This situation forces the eye to continuously focus on reading the text without enough time to enjoy the visuals, thus reducing the immersive experience.

Fifth, all respondents hoped Netflix would more actively involve the Deaf community in the testing and improvement of closed captioning, particularly in translation, text positioning, and personalization features such as color, size, and screen placement. They believed that direct community involvement would result in more functional and empathetic closed captioning that addresses the real needs of Deaf viewers.

This shared experience confirms that accessibility barriers are not individual issues, but rather systemic issues in CC feature design that fail to fully address the principles of universal design for inclusion. Therefore, an effective viewing experience for the Deaf community can only be achieved if the system adapts its technical functions to how they collectively interpret text and visuals.

Figure 2. Close Caption (CC) for the film 1 Uncle 7 Nephews on Netflix

Based on the synthesis of field findings, a number of general patterns can be identified that illustrate the deep relationship between closed captioning and the Deaf community's viewing experience on Netflix.

First, the Deaf community doesn't simply need text as a transcription of sound, but rather wants closed captions that are informative, contextual, and empathetic. For them, text isn't just a means of conveying words, but a bridge connecting the visual world and the world of meaning previously presented through sound. This aligns with the concept of accessible storytelling proposed by Romero-Fresco (2019), where the success of media accessibility is measured not by the mere presence of text, but by its ability to deliver an emotionally equivalent narrative experience.

Second, closed captioning is perceived not as a passive aid, but as a means of active

interaction with the media. The deaf community uses closed captioning to interpret the atmosphere, assess character expressions, and even understand emotional conflicts in the story. In this context, closed captioning serves as a substitute for the auditory dimension, as well as a medium that represents their active participation in understanding the film.

Third, CC also serves a social and cultural function for the Deaf community. Through text, they not only enjoy entertainment but also build cross-cultural understanding and identity. Several respondents mentioned that watching together with other Deaf people often becomes a social activity that strengthens community solidarity, where they discuss the meaning of idioms, humorous styles, or nuances of sound that appear in the text. In other words, CC serves as a medium for social inclusion and cultural literacy.

Fourth, the general pattern that emerged confirms that CC is not simply a technical device that presents text on screen, but an empathetic bridge between the user and the cinematic experience. Respondents described that when CC is well-crafted synchronous, concise, descriptive, and meaningful they can "experience the film like other viewers." Conversely, when CC is mistranslated or lacks contrast, the viewing experience devolves into a mechanical reading activity that loses its emotional power.

This, the general pattern of this research reinforces the finding that closed caption accessibility has a complex meaning for the Deaf community, functioning simultaneously as a communication tool, a means of self-representation, and a space for social participation. Netflix, as a global platform provider, has an ethical and technological responsibility to ensure that its CC feature not only fulfills functional aspects, but also pays attention to humanistic aspects, namely providing a truly inclusive, meaningful, and equal viewing experience for all users, without exception

Figure 3. Respondent Interview Using Sign Language

The research problem in this study focuses on understanding how the quality and availability of closed captioning influence the effectiveness of an inclusive viewing experience for the Deaf community on the Netflix platform. Based on observations and interviews with six respondents in the Jakarta and Tangerang areas, it was found that an inclusive viewing experience depends heavily on three main aspects:

1) **CC technical accessibility, including time synchronization, readability, and visual design**.

Technical Accessibility is Synchronization and Readability as the Basis for Inclusivity. The first finding indicates that the synchronization of the timing of text and audiovisual dialogue is the most crucial factor in determining the effectiveness of closed captioning. Four respondents (R1, R2, R3, and R4) stated that a delay in the appearance of text between 0.5–1 second causes impaired comprehension and decreases emotional engagement. Respondent R1 explained that "the humor in the scene is no longer funny when the text arrives late." This shows that even the slightest delay can lose the audience's affective momentum, as timing is an essential element in audiovisual communication. Downey (2008) emphasized that unsynchronized closed captioning will change the way Deaf users process information because they rely on visual translation of the timing of dialogue, not sound. Furthermore, the aspect of visual readability also has a significant impact. Two respondents (R3 and R5) experienced eye fatigue due to text that is too long or covers important visual areas. This indicates that the visual design of closed captioning does not pay attention to the principles of text ergonomics, such as a two-line limit and a maximum length of 40 characters per line (Mahalli, 2018). Thus, from a technical perspective, the effectiveness of closed caption accessibility in supporting an inclusive viewing experience is largely determined by the quality of synchronization and readability. Netflix needs to adopt universal technical standards such as real-time latency of ≤250 ms and adaptive positioning to ensure captions don't obscure important on-screen elements.

2) **Semantic accuracy and emotional context, related to voice translation and description**.

Semantic and Emotional Accuracy Deliver Equivalent Meaning. The second dimension of the problem statement relates to how translation accuracy and emotional descriptions in Netflix CC affect the Deaf community's interpretation of content. Four respondents (R2, R4, R5, and R6) revealed that many idiomatic translations in Netflix CC are culturally incongruent, even leading to confusion. For example, the expression "break a leg" is literally translated as "break your leg." This error eliminates the positive message intended in the original culture and disrupts users' cognitive understanding. Furthermore, Netflix CC often omits emotional descriptions such as "[sarcastic laugh]" or "[tense music]." R4 stated that "just writing the word 'angry' isn't enough; I need to know if the tone is loud, soft, or restrained." This suggests that the Deaf community requires emotional contextualization to experience the same emotions as hearing viewers. Gomizelj (2022) found that the success of CC is measured not only by linguistic accuracy but also by the completeness of emotional meaning. When text contains only words without mood, CC fails to fulfill its inclusive function. In this context, CC should be understood as multimodal text that transforms sound into meaningful visual signs. From these results, it can be concluded that inclusivity is not only technical, but also semantic and affective. Netflix needs to ensure that CC not only displays dialogue but also communicates the tone, intensity, and emotional atmosphere of the scene so that deaf users have an emotionally and narratively equivalent experience.

3) **Users, including adaptive capabilities and participation of the Deaf community as active users**.

Affective Experience: CC as a Bridge of Emotion and Empathy. The problem formulation also touches on the "effectiveness of an inclusive viewing experience," which theoretically encompasses the affective dimension, namely the extent to which viewers feel emotionally involved with the show. Observations indicate that descriptive and synchronous CC can create a powerful immersive experience. Respondent R2 stated that the descriptions "[tense music]" and "[distant screams]" made him "feel like he was in the scene." Conversely, when CC lacked description, respondents described it as "watching a silent film without life." These findings

confirm Evelina's (2020) view that closed captioning is a means of emotional literacy for the Deaf community, enabling them to understand the nuances of the atmosphere through textual signs. In other words, CC is not just a cognitive aid, but an affective instrument that builds a sense of presence, empathy, and engagement. The effectiveness of CC in creating an inclusive viewing experience depends on its ability to transfer multisensory experiences into a visual format accessible to Deaf users. This is in line with Romero-Fresco's (2019) idea of accessible filmmaking, namely that accessibility must be embedded from the production stage to ensure that every audiovisual element can be translated equally into text form.

These three dimensions directly contribute to the effectiveness of audiovisual communication between text, images, and emotions conveyed in Netflix shows. In other words, the success of inclusivity is measured not only by the availability of CC features, but also by the extent to which those features can provide an equal experience for Deaf and hearing viewers.

Digital Literacy and Adaptability as Enhancers, but Not Substitutes for Inclusivity Interview results indicate that the Deaf community has a relatively high level of digital literacy in operating CC features. They understand how to change text size, color, and display speed. However, these skills do not automatically guarantee an equal viewing experience. R6 explained that "we can adjust the text or screen brightness, but if the translation is wrong, it's useless." This emphasizes that user adaptive capabilities only serve as compensation for system shortcomings, not a true solution to accessibility issues.

Handayani et al. (2024) emphasize that the primary responsibility for digital inclusivity should not be placed on the user, but rather realized through system design that addresses the needs of sensory disabilities. In this context, Netflix needs to involve the Deaf community in the user experience testing and caption validation process. Thus, digital literacy plays a supporting role, not a substitute. A truly inclusive viewing experience can only be achieved if the system, content, and users work together in synergy within an empathy-based design paradigm.

This research framework draws on Romero-Fresco's (2019) perspective on inclusive media accessibility, which emphasizes that accessibility is not just about the availability of technology, but also about the extent to which technology can ensure equality of experience. These field findings reinforce this framework by demonstrating that:

1) *Closed caption*which only functions technically does not guarantee equality of experience.
2) The affective dimension (emotion and empathy) must be integrated into the text design.
3) The involvement of the Deaf community in quality testing is part of social inclusion by design.

This study confirms that closed captions are effective when designed with the principles of technical accessibility, meaning equity, and social participation of deaf users in mind. These three aspects form a new concept known as the Inclusive Caption Experience Model, where the viewing experience is not solely a result of available features, but rather a co-creation between technology and the user community.

CONCLUSION

This study analyzes the impact of closed caption (CC) accessibility on the effectiveness of an inclusive viewing experience for the Deaf community on Netflix. Based on interviews with six respondents in Jakarta and Tangerang, it was found that closed captioning plays a crucial role as a bridge between text, visuals, and audio meaning. Technical aspects such as synchronization, readability, and text contrast determine the level of comprehension and viewing satisfaction. Semantically, the effectiveness of closed captioning is influenced by the accuracy of translation and emotional descriptions that help establish the mood of the scene. Furthermore, closed captioning creates emotional engagement and serves as a means of cultural

inclusion. Although the Deaf community demonstrates high digital literacy, less adaptive system designs still limit their access. Therefore, closed captioning directly impacts an equitable and inclusive viewing experience and should be considered a key component of inclusive communication and equitable access to digital media.

This study has several limitations that should be considered. The number of respondents was limited to six people from Jakarta and Tangerang, making it unrepresentative of the diversity of the Deaf community in Indonesia. The types of shows observed were limited to action, drama, and comedy films, so the results do not cover all Netflix genres. The qualitative approach used was also subjective, relying on individual perceptions, although validity was maintained through triangulation. Furthermore, the study did not examine the technical aspects of the Netflix system in depth. These limitations open up opportunities for further research using a mixed methods approach and a broader regional scope.

Based on the research results, it is recommended that platform developers like Netflix improve caption synchronization with a maximum latency tolerance of 250 milliseconds and add descriptions of sound effects and emotions to enrich the affective context. Text readability should be improved with two-line limits and high contrast, as well as providing color and position personalization features. The deaf community should be actively involved in closed caption feasibility testing. Researchers are advised to use a quantitative approach and explore AI captioning technology. The government should also establish national standards for digital media accessibility to make streaming services more inclusive and equitable

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